Battle Stories
Objective Peach

The attack to seize and secure Objective PEACH during the maneuver phase of Operation Iraqi Freedom (OIF) illustrates the impact of two new technologies on the battlefield: the Blue Force Tracking (BFT) system and TeleEngineering system. This vignette will highlight how TeleEngineering allowed the force to better prepare for the seizure of the bridge at Objective PEACH and how the BFT allowed the task force commander charged with securing the bridge to swiftly alter his mission from providing a bridgehead line to a hasty defense. Both of these actions were critical in maintaining the V Corps' rapid advance to Baghdad. The battle story presents a clear example of where improved quality of information, information sharing, shared situational awareness, and collaboration led to self synchronization and greater mission effectiveness.

CONTEXT OF THE BATTLE STORY

This battle story follows Task Force 3-69 Armor (AR) as it attacks Objective PEACH, a key bridge over the Euphrates River, and then defends the bridge against Iraqi counterattacks. The actions occurred on 2-3 April 2003.

ENEMY FORCES

On 1 April 2003, the majority of the Iraqi military forces in V Corps' area of operations were east of the Euphrates River, vicinity Ad Diwaneyah, Al Hallah, Al Hindiyah, and all the way south to An Nasiriyah reacting to the five simultaneous attacks conducted by V Corps on 31 March. There

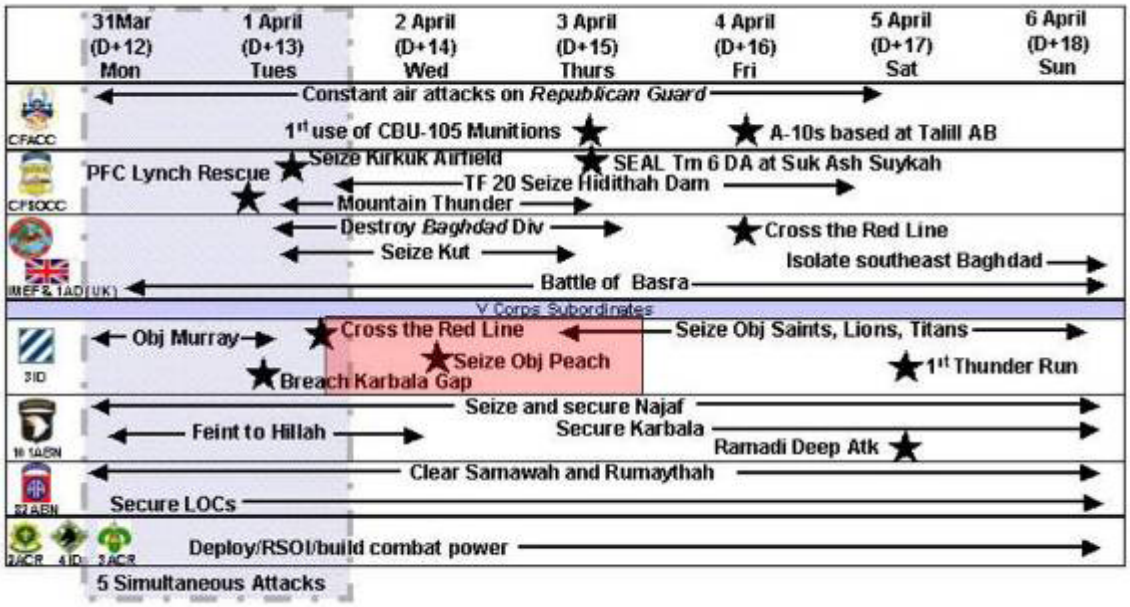

Figure 1: Timeline[1]

[1] Figure 1, Timeline, courtesy of *On Point*.

were the Republican Guard units – the Medina Division and brigades from the Hammurabi and Nebuchadnezzar Divisions – as well as units from other divisions, including the 11th Infantry and 34th Infantry Divisions. The reactions by the Iraqi military forces to the five attacks included moving reinforcements from the north and the repositioning of forces during daylight, which subjected the enemy to devastating joint operational fires. There were, however, large numbers of units still defending between the 3rd Infantry Division (3 ID) and Baghdad. The majority of the Hammurabi Division was located west of Baghdad, and there were numerous other units defending along the way that were capable of conducting limited maneuver and local counterattacks. Reinforcing the Republican Guard and other military forces throughout the V Corps area of operations were large numbers of the Saddam Fedayeen, Al Quds, and other paramilitary forces.

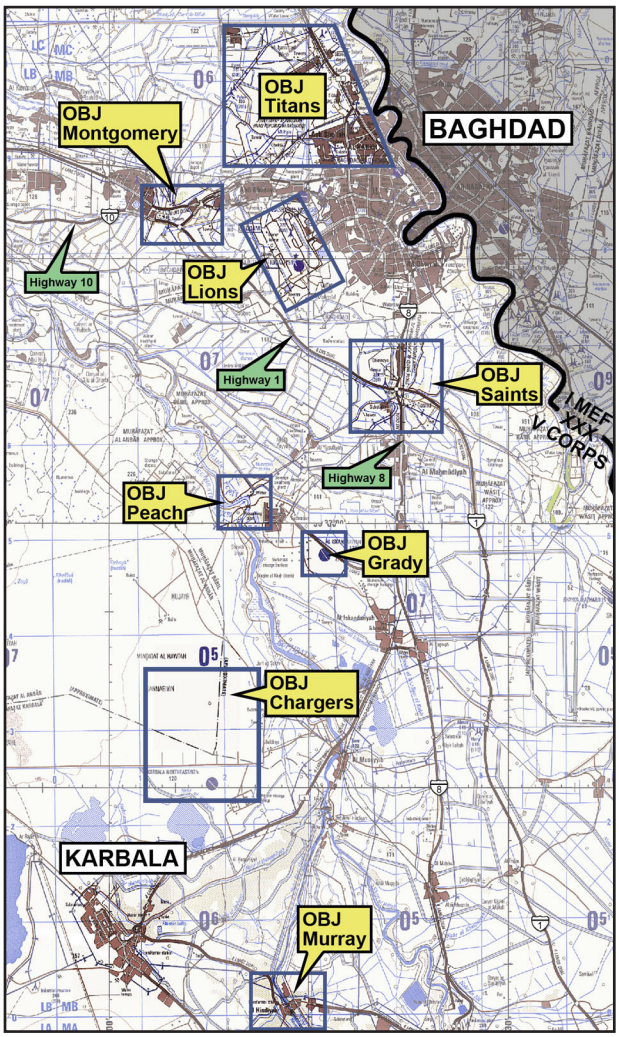

Figure 2: Objectives Near Baghdad

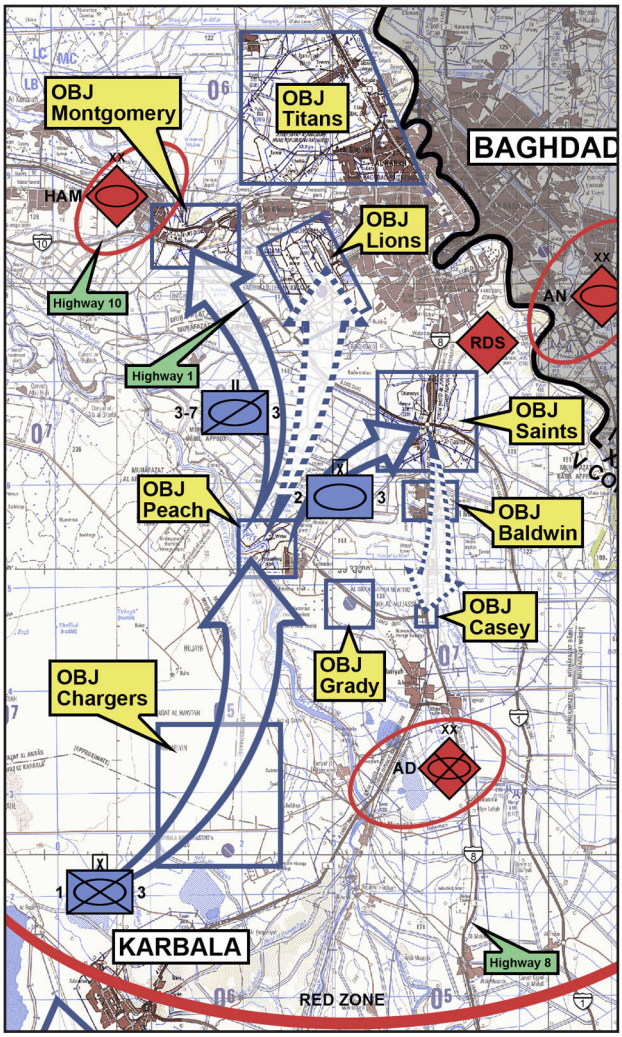

Figure 3: Enemy Forces Reposition, Karbala [2]

[2] Figure 2, Objectives Near Baghdad, and Figure 3, Enemy Forces Reposition Karbala, courtesy of *On Point*.

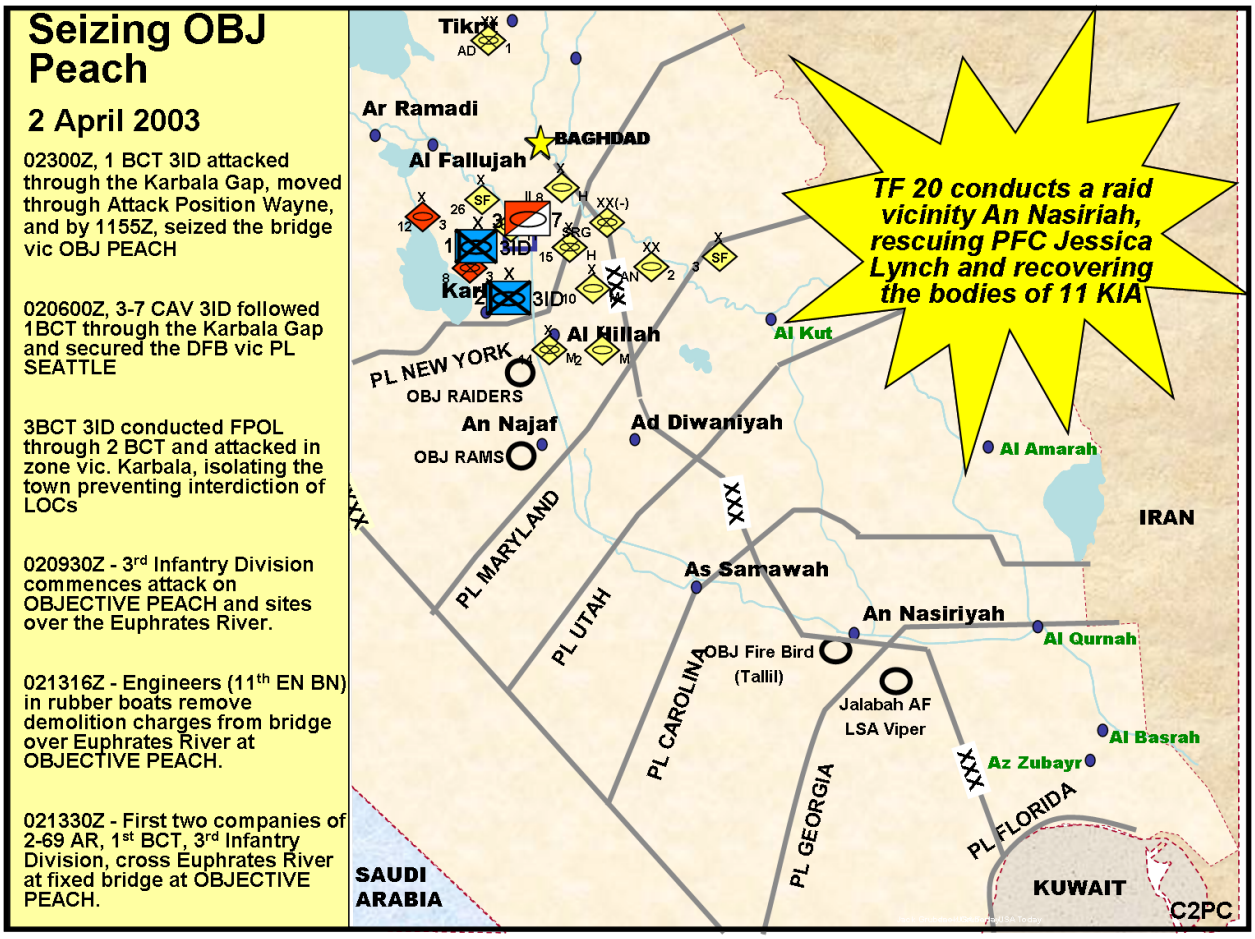

Figure 4: The Setting for the Battle at Objective PEACH [3]

FRIENDLY FORCES

By the 2nd of April, the 3 ID was advancing west to east from the Karbala Gap towards the Euphrates River to seize Objective PEACH and continue the attack to Baghdad. Lieutenant General William S. Wallace, V Corps commander, determined that the movement through the Karbala Gap and on to Baghdad needed to be both rapid and fluid, a continuous attack to Baghdad. He and all of the commanders knew that they were penetrating the enemy "red zone," and if the Iraqis were going to use chemical weapons, conduct large scale counterattacks, or mass artillery fires this was one of their last opportunities to do so.

The Euphrates River was the last natural obstacle between 3 ID and Baghdad. The bridge at Objective PEACH was located about thirty kilometers southwest of Baghdad and provided the best passage for the seizure of two key objectives, LIONS (Baghdad International Airport) and SAINTS (the key intersection of Highways 1 and 8). This four-lane class-70 bridge over the Euphrates River was required to support the forward movement of all V Corps ground combat

[3] Figure 4, The Setting for the Battle at Objective PEACH, courtesy of V Corps Historian, Dr. Charles E. Kirkpatrick, slide from V Corps briefing "The Road to 'Victory' in Operation Iraqi Freedom."

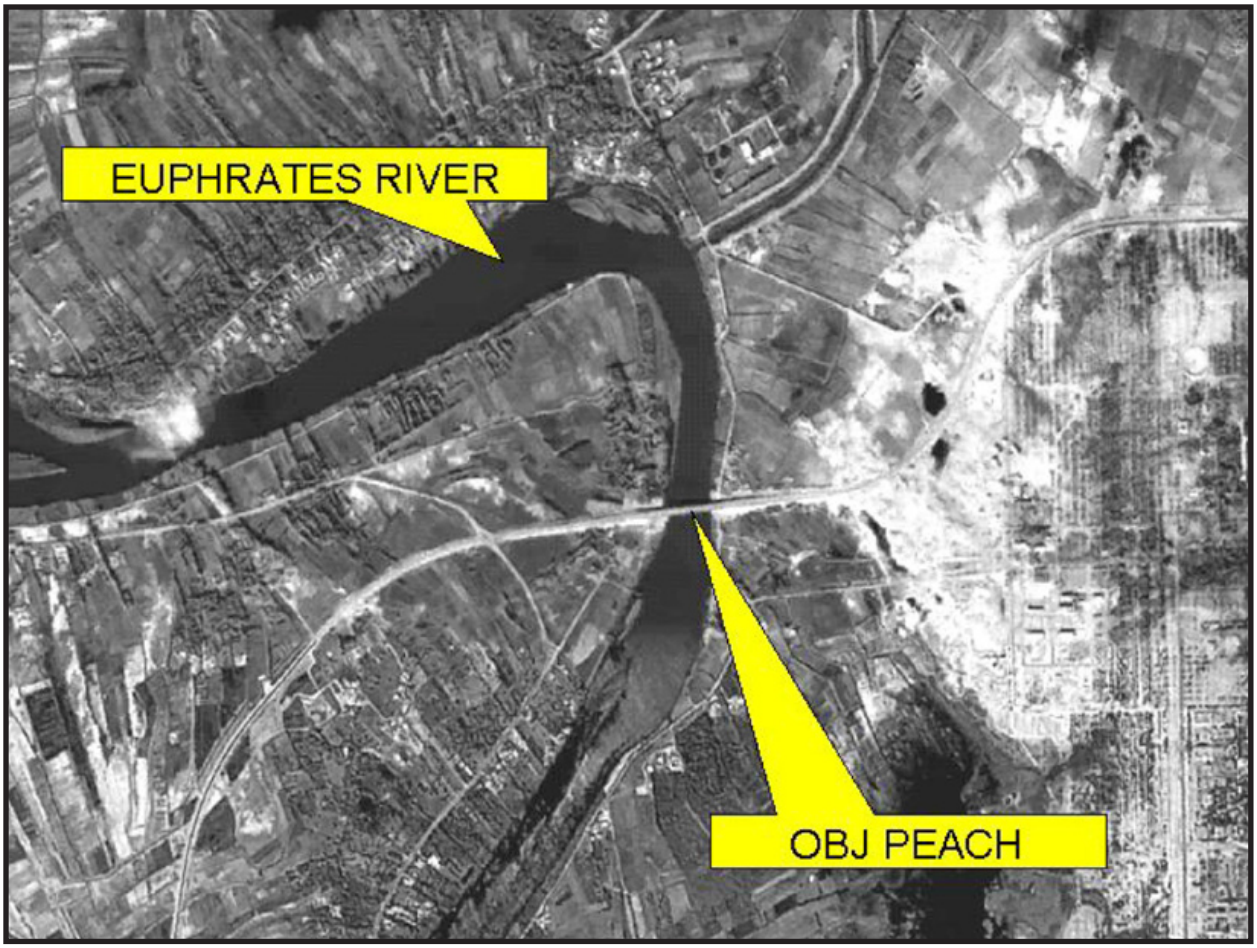

Figure 5: Aerial View of Bridge at Objective PEACH[4]

and support forces. Therefore, seizing and securing the bridge intact at Objective PEACH was vital to the corps' overall scheme of maneuver and critical to maintaining the corps' continuous rapid advance to Baghdad. If the Iraqis destroyed the bridge, the corps only had exactly enough bridging sections to make one bridge across the Euphrates River. The task of securing Objective PEACH went to 3 ID's 1st Brigade Combat Team (BCT) and specifically to battalion Task Force 3-69 AR, commanded by Lieutenant Colonel Ernest "Rock" Marcone.

LTC Marcone had previous experience in seizing a bridge; his unit had seized the bridge at Objective JENKINS, at Al Kifl north of An Najaf, on 25 March. There his lead unit got three tanks across the bridge before the Iraqi forces exploded preset demolitions damaging the bridge. Fortunately, the bridge was assessed as capable of supporting continued heavy traffic.[5]

The engineers learned a great deal from the bridge at Al Kifl. The engineers supporting the BCT were, in turn, supported by V Corps engineers from the 54th Engineer Battalion. The 54th had TeleEngineering Communications Equipment (TCE), which provided a reachback capability to

[4] Figure 5, Aerial View of Bridge at Objective PEACH, courtesy of *On Point*.

[5] 3rd Infantry Division, Operation Freedom: Third Infantry Division (Mechanized) "Rock of the Marne" after Action Report, Final Draft, (US Army, 3rd Infantry Division (Mechanized), Ft. Stewart, GA, 2003), Operational Overview, Battle of An Najaf: 25-28 March.

Figure 6: Bridge at Al Kifl [6]

engineering expertise in the U.S. Using a secure satellite link, the TCE was able to provide the engineers with video teleconferencing back to engineering expertise in the U.S. concerning the bridge at Al Kifl. With the information they received via the TCE, the engineers in the U.S. were able to determine the type of construction, assess the military load bearing capacity of the damaged bridge, and make recommendations on temporary upgrades and fixes the 54th Engineers could make to enhance the military utility of the bridge.[7] From the captured demolitions, the engineers were able to identify the type of explosives the Iraqis were using (German made) and the tactics, techniques, and procedures the Iraqis were most likely using to blow the bridges.[8]

THE ATTACK

For the attack from Karbala to Baghdad, the 3 ID had

> developed a relatively simple scheme of maneuver. The 3rd BCT would lead the attack, with the mission of isolating the town of Karbala…The 3rd BCT would isolate the eastern portion of Karbala, while 1st BCT would follow to isolate the western portion and seize key bridges on Highway 28 and a dam on the western side of the gap…. Once it seized the dam, 1st BCT would continue on, attacking to find remnants of the Medina brigade. Finally, the plan required the 1st BCT to seize Objective PEACH, the division's real crossing site over the Euphrates River."[9] The 2nd BCT was to depart from its feint objective vicinity Al Hillah and follow 1st BCT then pass through 1st BCT and cross the Euphrates at PEACH and continue the attack to seize Objective SAINTS. "The intended end state for these attacks envisioned 2nd BCT across the Euphrates, 1st BCT at the crossing site prepared

[6] Figure 6, Damaged Bridge at Al Kifl, photograph courtesy of On Point.

[7] Information provided by Mr. Jeff Williamson, Director, TeleEngineering Operations Center, 11 April 2006.

[8] Interview with Major Garth Horne, Battalion Operations Staff Officer (S-3), 11th Engineer Battalion, 3rd Infantry Division (Mechanized), During Operation Iraqi Freedom, Mar-May 2003. Interview by Ian McDougall from PA Consulting, Greg Boehmer from PA Consulting, John B. Tisserand III, Colonel, U.S. Army, Retired and Duane E. Williams, Colonel, U.S. Army, Retired. Videotaped interview, 17 March 2004.

[9] Gregory Fontenot, Colonel, US Army, Retired, E.J. Degen, Lieutenant Colonel, US Army, and David Tohn, Lieutenant Colonel, US Army, On Point: The United States Army in Operation Iraqi Freedom (Fort Leavenworth, Kansas: Combat Studies Institute Press, 2004), 284-85.

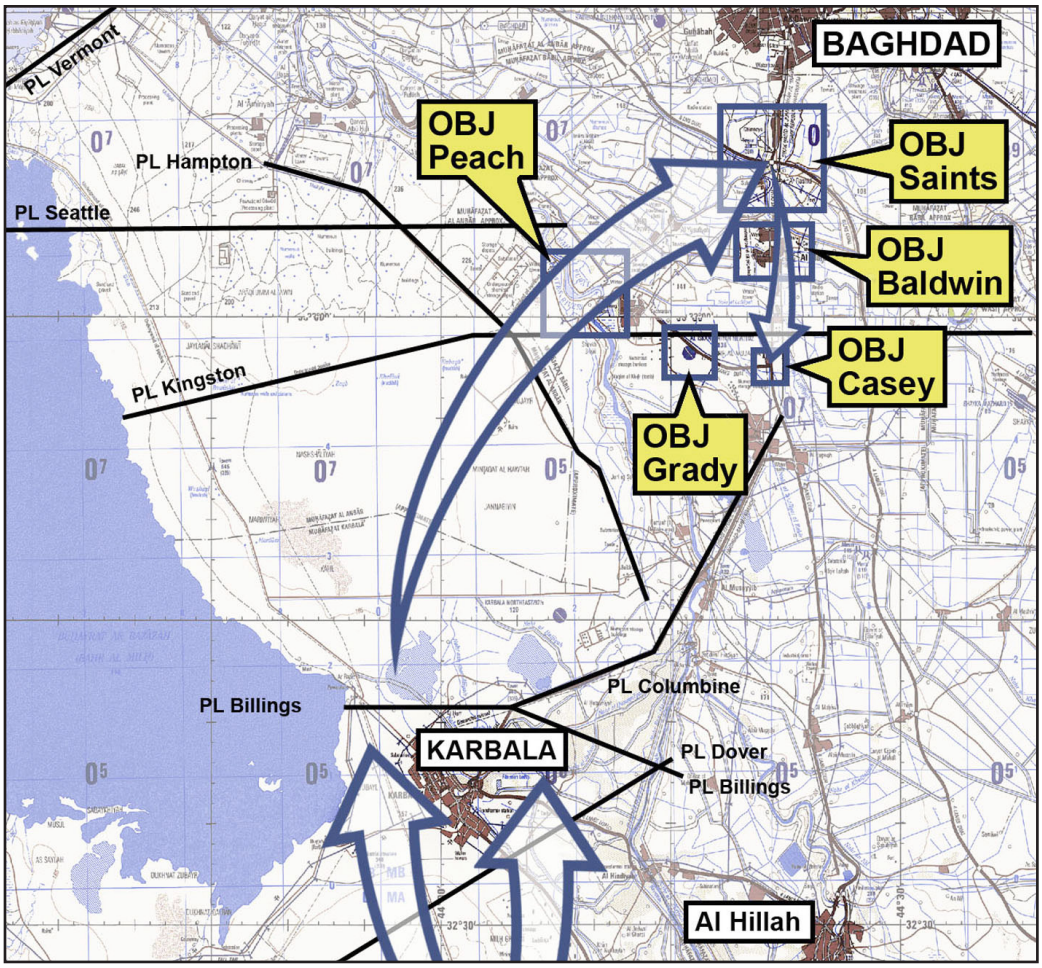

Figure 7: Scheme of Maneuver from Karbala Gap through Objective PEACH[10]

> to attack north to Objective LIONS, and 3rd BCT containing Karbala. Once the 101st arrived to relieve 3rd BCT at Karbala, the 3rd would cross the river at PEACH and attack north to seize Objective TITANS to isolate the western side of Baghdad.[11]

On 2 April at 0200, the 1st BCT began its attack into the Karbala Gap with two battalion task forces abreast, TF 3-69 AR on the right and TF 3-7 Infantry (IN) on the left, and one task force following. The fight through the Karbala Gap was quick as the Iraqi forces were mostly dismounted infantry and, after having been subjected to heavy artillery fires, "did not have the stomach for a fight."[12] The 1st BCT was through the gap by 0700 and by mid-morning was positioned in Objective CHARGERS, north of Karbala, where they began refueling in preparation for the attack to PEACH. After the rapid success in the Karbala Gap, the decision was made to continue pushing the attack to seize Objective PEACH.

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[10] Figure 7, Scheme of Maneuver from Karbala Gap through Objective PEACH, courtesy of On Point.

[11] Fontenot, Degen, and Tohn, On Point, 284-85.

[12] Interview with Lieutenant Colonel Ernest Marcone, Commander, Task Force 3-69 Armor, 3rd Infantry Division (Mechanized), During Operation Iraqi Freedom, Mar-May 2003. Interview by Ian McDougall and Greg Boehmer from PA Consulting, John B. Tisserand III, Colonel, U.S. Army, Retired and Duane E. Williams, Colonel, U.S. Army, Retired, videotaped on 16 Mar 2004.

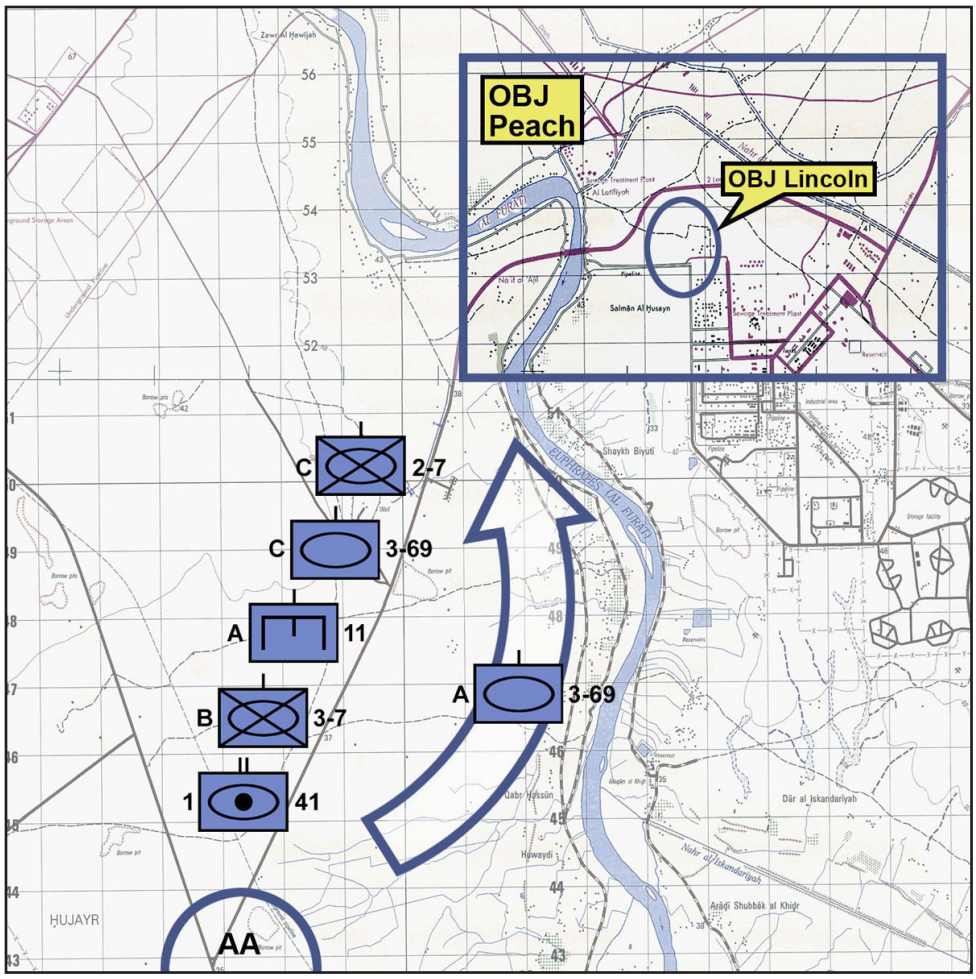

Figure 8, TF 3–69 Armor's Approach to Peach[13]

The 1st BCT plan called for TF 3-69 AR leading the attack to PEACH while TF 2-7 IN conducted a feint to the east towards the bridge at Musaib: an area where there were three class-70 bridges and where it was believed the Iraqis were expecting the 3 ID main effort to cross. TF 3-69 AR at that time consisted of two tank companies, two mechanized infantry companies, two engineer companies, a scout platoon, a chemical reconnaissance platoon, and a smoke generating unit; the TF also had an attack helicopter company providing over-the-shoulder coverage and 1-41 Field Artillery (FA) in direct support.[14]

TF 3-69 AR started moving out of CHARGERS at 1230. The battalion scout platoon and A Company (tank) conducted a limited attack to the east and then moved north along the river, attacking enemy forces south of the bridge and developing the situation around the bridge. Within forty minutes or so, the scouts were in contact with what was estimated to be about a battalion plus worth of dismounted infantry, mostly Fedayeen, on the west side of the bridge. LTC Marcone quickly sent forward his A Company tanks and attack aviation to clear the Fedayeen and attack up to the river line, securing the west side of the bridge by about 1430. The remainder of the task force had

[13] Figure 8, TF 3-69n Armor's Approach to Peach, courtesy of *On Point*.

[14] Ibid.

Figure 9: Engineers Surveying Bridge at Objective PEACH[15]

completed refueling in CHARGERS and then attacked along the primary route to the bridge; they were in contact with enemy forces most of the way to the bridge.[16]

Having learned from their experiences at Al Kifl just a week before, the task force had planned fires from both field artillery and air delivered precision joint direct attack munitions (JDAM) on the likely locations of the enemy engineers assigned to blow the bridge. While these fires were being placed on the enemy positions, the task force had close air support and attack helicopters attacking enemy positions on the east side of the river as engineers and infantry were preparing to cross the Euphrates in eight rubber boats to safe the bridge and clear enemy forces immediately on the west side of the bridge. Under the cover of smoke and suppressive fires, the troops in the rubber boats got across the river and secured the far side of the bridge. However, the enemy was able to set off one set of demolitions and blew a hole on the east side of the bridge. This explosion damaged one lane but did not endanger the viability of the bridge, and three lanes remained open for use. The pre-planned fires on the other likely firing locations worked well in destroying most of the firing locations for the demolitions. After a lodgment was established on the east side and the bridge safed, LTC Marcone immediately sent a company each of tanks and mechanized infantry across the bridge to secure a canal bridge and establish a bridgehead line in preparation for the follow-on forces from 2nd BCT. By 1630, LTC Marcone's task force held the bridge at PEACH; they expected to hold the bridge for approximately four hours until 2nd BCT forces would pass through on their attack to Objective SAINTS.

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[15] Figure 9, Engineers Surveying Bridge at Objective PEACH courtesy of *On Point*.

[16] Interview with Lieutenant Colonel Marcone.

Originally, 2nd BCT was to follow 1st BCT through the gap and would have been about four hours behind the lead unit of the 1st BCT. The decision, made early in the morning, to continue the attack on to PEACH altered the division's timing and required 2nd BCT to change its route. Rather than following 1st BCT through the gap along congested roads, 2nd BCT quickly planned a new route to the east of Karbala that would allow the BCT to get through PEACH more quickly. However, after 2nd BCT started moving on its new route it quickly discovered that the route could not support the movement, and the BCT got bogged down. At about the same time as TF 3-69 AR was securing PEACH, the 2nd BCT commander decided to turn his BCT around and backtrack, moving back through the Karbala Gap as originally planned.

Back at PEACH, LTC Marcone did not know that 2nd BCT had taken an alternate route or that they had gotten bogged down. He observed in his tank-mounted FBCB2-BFT that the 2nd BCT had changed from its planned route following 1st BCT to moving east of Karbala; later he observed that they were now backtracking back towards the Karbala Gap. He concluded that they must have met some kind of obstacle and, making a quick time distance calculation from the information provided by his BFT, LTC Marcone estimated that 2nd BCT would not be passing through until sometime the next morning. Using this information, LTC Marcone decided to change his posture at the bridge from that of providing bridgehead security with a bridgehead line to preparing a hasty defense. Identifying key terrain and likely enemy avenues of approach, he pushed out his four maneuver units and engineers into defensive positions to the north and up to five kilometers east of the bridge. The 1st BCT commander, Colonel William Grimsley, pushed TF 3-7 IN across the bridge to take up defensive positions along the south of the bridgehead line. By 1815, the 1st BCT had two battalions in defense of the bridgehead; TF 3-69 AR covered the most dangerous avenues of approach. 1st BCT had received an intelligence report, "the best intelligence that I received during the war,"[17] that an Iraqi commando brigade was on the move towards them from the Baghdad International Airport area. Beginning around 2000 until around 0530 on 3 April, TF 3-69 AR was attacked by two Republican Guard brigades (the 10th Armored Brigade of the Medina Division and the 22nd Brigade) and the Iraqi 3rd Special Forces Brigade. The Task force was subjected to heavy Iraqi artillery and mortar fire throughout the night. Using their night vision equipment, TF 3-69 AR units were able to identify and engage the counterattacking Iraqi forces at extended ranges. TF 3-69 fires combined with artillery and close air support across the breadth and depth of the battlespace decimated the Iraqi counterattacks, the largest counterattacks mounted by the Iraqi forces during the war. LTC Marcone estimated the fighting was over by 0630 on the morning of 3 April.

The lead battalion task force of 2nd BCT began the passage through PEACH enroute to Objective SAINTS around 0845 on 3 April. Later that morning, 2nd BCT's TF 3-15 IN conducted a relief in place at PEACH, allowing the 1st BCT to prepare for its attack to Objective LIONS.

TECHNOLOGY DESCRIPTION

Force XXI Battle Command Brigade and Below – Blue Force Tracker (FBCB2-BFT)

The blue force tracker (BFT) was one of the most widely praised command and control (C2) systems of the maneuver phase of Operation Iraqi Freedom. It provided unprecedented situational awareness from the lowest tactical level to the highest strategic level.

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[17] Ibid.

The Force XXI Battle Command Brigade and Below (FBCB2) is a digital command and control (C2) system consisting of both hardware and software integrated into platforms primarily at brigade and below. The system provides an automated network enabled C2 system facilitating the flow of battle command tactical mission requirements. It interfaces with Army and Joint C2 and other sensor systems on the battlefield, resulting in vertical and horizontal information integration. This shared common battlefield picture displays near-real-time information which contributes to situational awareness, provides graphics and overlays, and allows the exchange of C2 messages. The FBCB2 now comes in two variants. The standard FBCB2 using the enhanced positioning location and reporting system (EPLRS) is a terrestrial based system and was developed as part of the Army Battle Command System development process. The FBCB2 fielded for Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) was the FBCB2-BFT, a satellite based version of the FBCB2-EPLRS, which was rapidly developed and procured outside of the standard development and procurement process.

The standard FBCB2-EPLRS is a digital C2 system for brigade and below application that is part of the Army's digitized force known as the Army Battle Command System (ABCS). The FBCB2-EPLRS was developed during the mid-1990s and was fielded and concept proven with the 4th Infantry Division and 1st Cavalry Division at Ft. Hood, Texas as the first divisions in a digitized force. The FBCB2-EPLRS is a terrestrial radio based line-of-sight system that relies on a dense population of systems in order to maintain connectivity for network integrity and maintenance of the common operational picture (COP). The line-of-sight requirement is a limitation for a widely dispersed force. The EPLRS based system is communications accredited (hardware encrypted) for both unclassified and secret information processing and can interface into the ABCS. It provides the user a wide set of tools which includes: navigational and map tools; self location provided through the precision lightweight GPS receiver (PLGR) equipment; digital terrain elevation data; point-to-point and circular terrain analysis tools; reports tools; text messaging; and other tools.

The FBCB2-BFT which was fielded for OEF and OIF escaped the terrestrial line-of-sight limitations associated with the FBCB2-EPLRS. The BFT version with its L-band transceiver satellite link provided over-the-horizon capabilities and thereby reduced the need for a dense population of closely associated systems to maintain network integrity. Because of bandwidth limitations BFT did not have the complete set of tools as provided by EPLRS; however, BFT provides many of the same capabilities. BFT provided the same map and navigational tools, GPS, digital terrain elevation data, terrain analysis tools, and a limited text messaging and e-mail capability. The BFT was not ABCS interoperable because it lacked the hardware encrypted secure communications accreditation but relied on digital encryption with a one-way entry into Global Command and Control System – Army (GCCS-A). This one-entry allowed for populating the COP and dissemination of the blue picture across the classified GCCS network. All FBCB2-BFT equipped platforms within the network also received the locations of all other BFT systems within the network. There was a capability to separate out organizations from the widely disseminated display and this was used for special operations forces locations. The generated COP was a near-real-time picture of the blue forces. The BFT update rate was every five minutes or a movement of 800 meters for ground vehicles and every minute or 2300 meters for air.[18] Both FBCB2-EPLRS and FBCB2-BFT can be locally or remotely challenged and destroyed if compromised by erasing the computer hard drive.

[18] James Conatser, Captain, U.S. Army and Thane St. Clair, Captain, U.S. Army, "Blue Force Tracking - Combat Proven," ARMOR, September-October 2003 (2003).

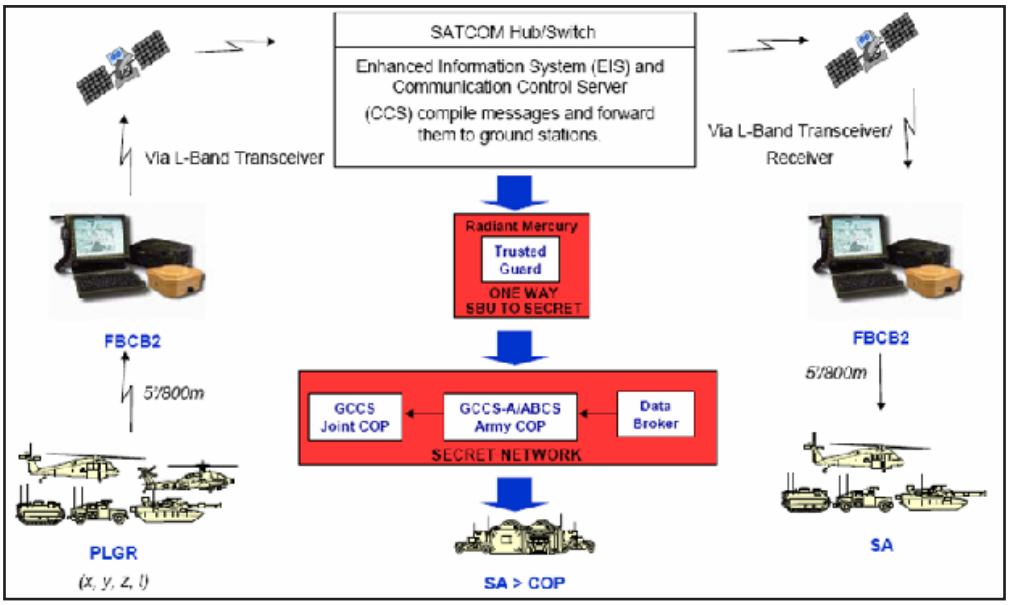

Figure 10: FBCB2-BFT Network During OIF

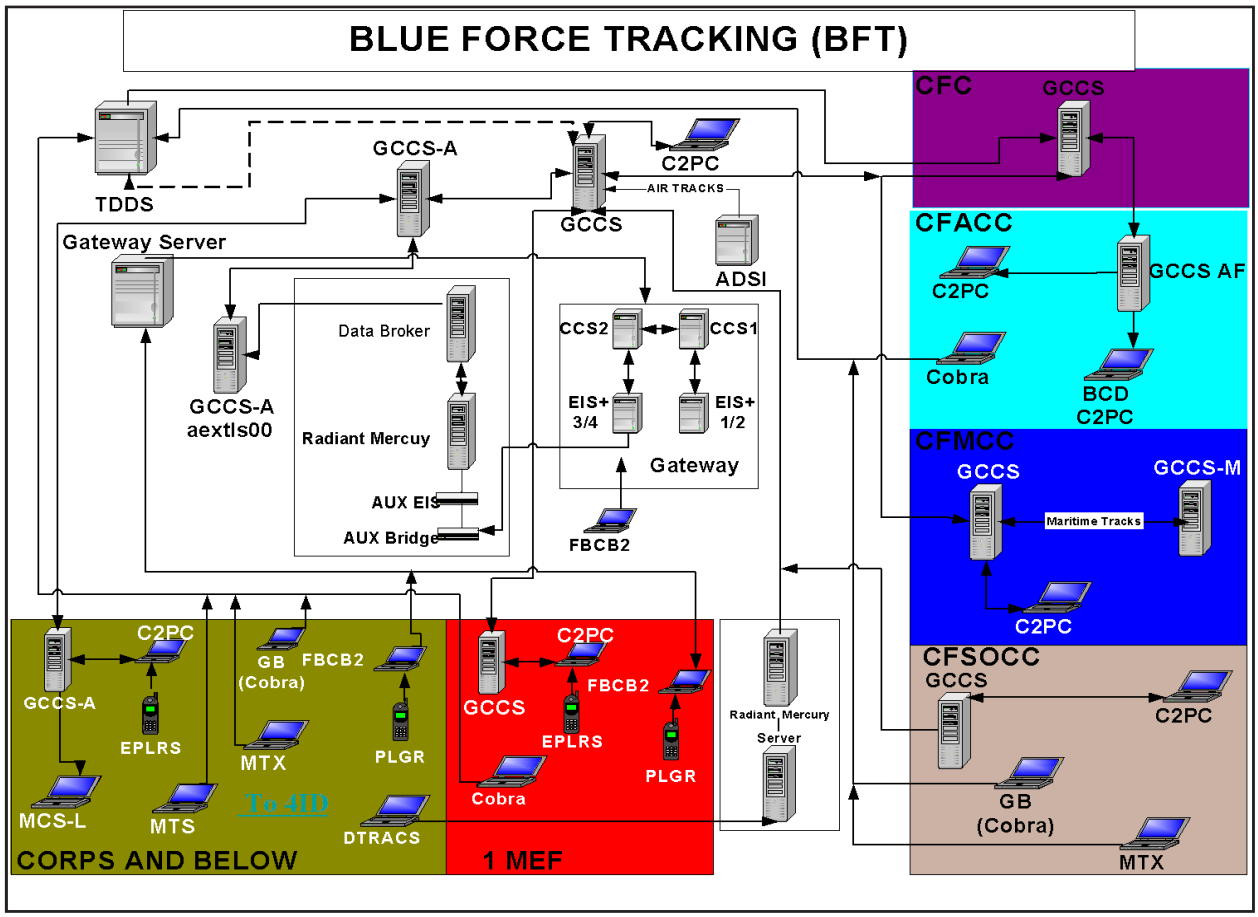

Figure 11: OIF BFT Architecture & the Joint Common Operational Picture

Figure 12: FBCB2-BFT Installations

TeleEngineering

TeleEngineering Operations is a technology "reachback" system developed by the U.S. Army Engineer Research and Development Center (ERDC) under the proponency of the U.S. Army Maneuver Support Center. TeleEngineering is simply "distance" or "reachback" engineering. When a complex problem is encountered in the field, soldiers can quickly send information via advanced communications links to the TeleEngineering Operations Center (TEOC). The Center can tap the technical expertise of the Corps of Engineers research laboratories, Corps districts and divisions, private industry, and academia to provide an expeditious answer to the problem.

The concept of reachback has been a cornerstone of the Corps' service for years. The name TeleEngineering reflects the increased capabilities provided by advanced high-speed communications that link the people with the problems to the people with the answers.

There are two different versions of the TeleEngineering Communications Equipment (TCE): a fixed-site version that is used in garrison (TCE-F) and a deployable (TCE-D) version that has been ruggedized for field use. The systems consist of a Polycom ViewStation capable of H.320-based conferencing, a Panasonic Toughbook, an encryption device, external hand-held camera, and other miscellaneous pieces. The deployable system uses auto-switching dual voltage power supplies and can operate from 110V to 220V AC or by using vehicle battery power.

Depending on their configuration, the systems can communicate point-to-point or they can be connected through a multipoint video teleconference (VTC) bridge at the ERDC TEOC to allow up to forty-four users in a secure VTC at a time. The data transfer rate and video connection for the deployable system is typically 64 kbs. This can be increased by adding additional satellite terminals. The system can also be used to send and receive non-secure e-mail traffic.[19]

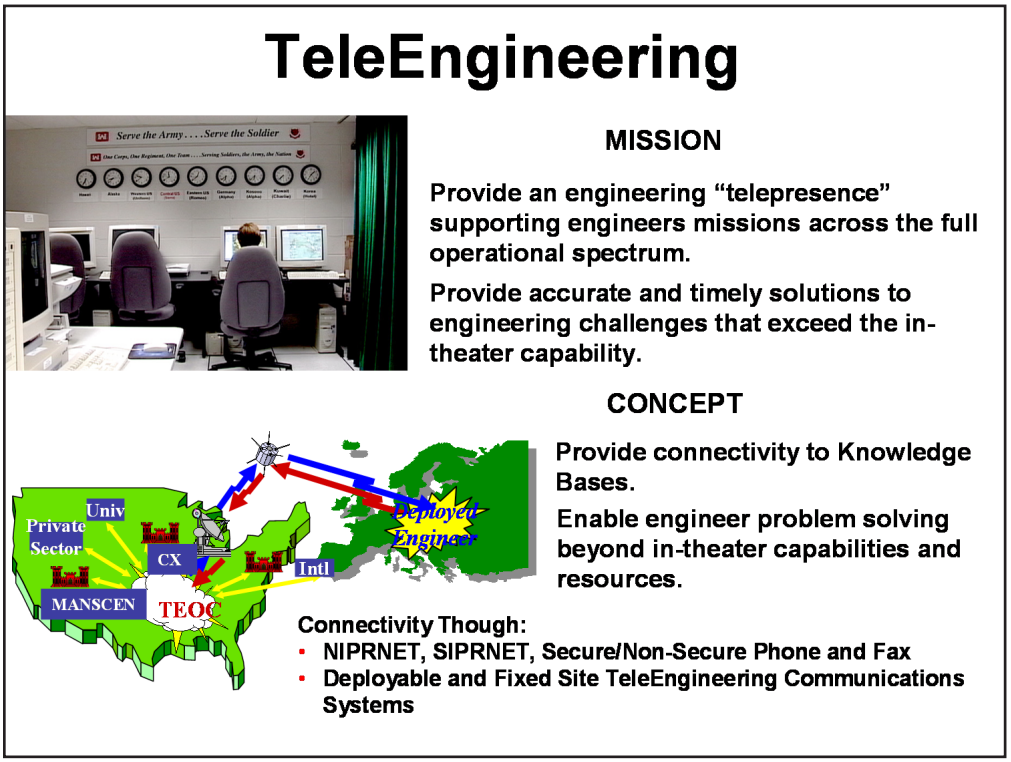

Figure 13: TeleEngineering Mission and Reachback Concept

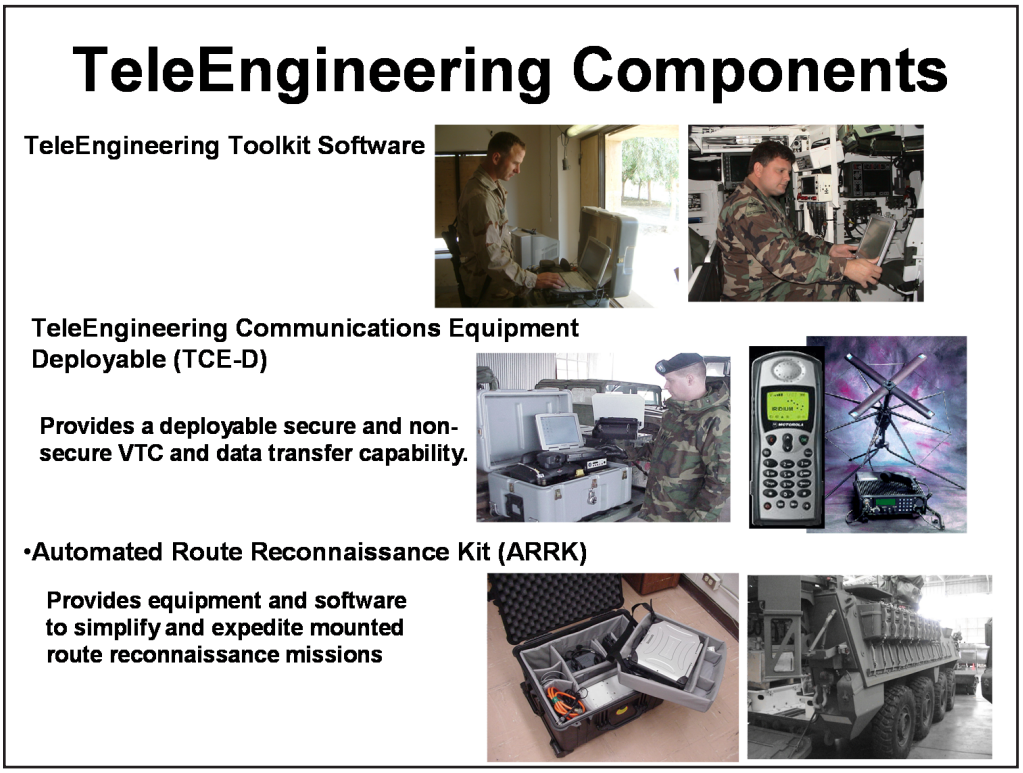

Figure 14: Deployable TCE (TCE-D)

ORGANIZATION STRUCTURE

Task Force 3-69 Armor at Objective PEACH

Army Field Manual 3-90.2 states "The role of the tank and mechanized infantry battalion task force is to fight and win engagements on any part of the battlefield. The task force (TF) combines the efforts of its company teams, combat support, and combat service support elements to execute tactical missions as part of a brigade or division operation. Mechanized infantry and armor battalions are an essential part of the Army's principal formation for conducting sustained combined arms and close combat land operations."

Engineering Expertise

- Dam Breach and Hydrology Analysis
- Bridge MLC
- Bomb Damage Assessment
- Trafficability (On / Off Road)
- Force Protection (Hescos, AT Planner)
- Geological Information
- Frost/Freezing / Rainfall / Climate Information and Analysis

Figure 15: Types of Available Reachback Expertise

Mechanized infantry and armor battalions are organized, manned, and equipped to conduct high intensity combat operations continuously. Brigade commanders task-organize their tank and mechanized infantry battalions into task forces by cross-attaching companies between them. The brigade commander determines the mix of company teams in a battalion task force. This task organization is designed to increase the capabilities of pure tank and mechanized infantry battalions and allows the brigade commander to tailor his force for the missions assigned.

Figure 16: Examples of Reachback Analysis Provided During OIF

[19] TeleEngineering Communications Equipment data from fact sheet provided by U.S. Army Engineer Research and Development Center, TeleEngineering Operations, dated May 2005.

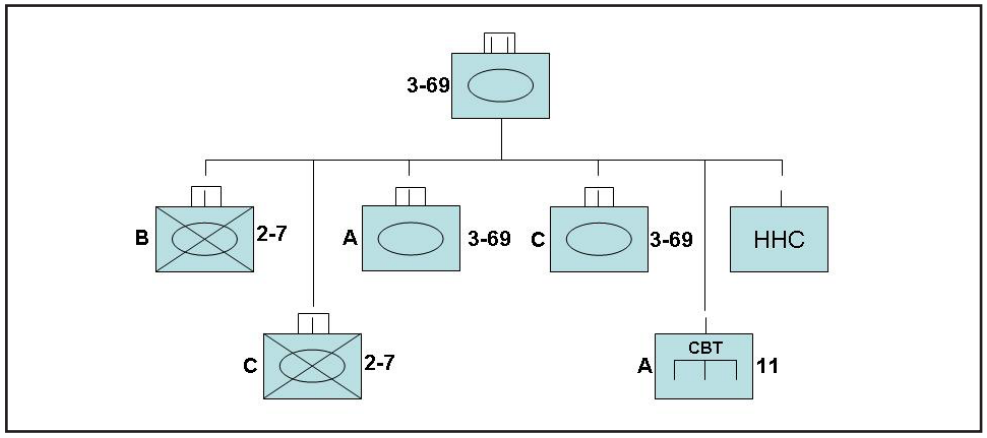

Figure 17: TF 3-69 AR Task Organization at Objective PEACH

This cross-attachment is generally done at the battalion level because battalions have the necessary command, control, and support capabilities to employ combined arms formations. Similarly, the TF commander may require cross-attachment of platoons to form one or more company teams for specific missions.[20]

The command and control of the battalion task force during combat operations is usually exercised via organic line-of-sight secure single channel air-ground radio systems (SINCGARS). Non-digitized task forces like 3-69 Armor operate a task force command net, an operations and intelligence (O&I) net, and an administrative-logistics (admin-log) net. It typically maintains contact with its controlling brigade commander and headquarters via SINCGARS on the brigade's FM nets and via mobile subscriber equipment (MSE), all of which are line-of-sight systems.

During OIF, the FM nets operated by the battalion task forces were generally adequate, given the relatively close proximity of the companies, for the command and control of task force operations. These voice nets were essential in providing situational understanding at the company and battalion task force level.

However, the brigade nets used to exercise command and control of the task forces were typically strained or inadequate. MSE nodes were not established while the brigade command posts were on the move, as they normally were during the majority of the offensive maneuver phase of OIF, and the FM nets were of limited use because of the wide dispersion of the task forces.

Blue force tracking systems were fielded to the majority of 3 ID maneuver units during the late January/February 2003 timeframe. TF 3-69 AR received its FBCB2-BFTs in February. The fielding to 3-69 AR was standard for 3 ID. Each company commander's and company executive officer's combat vehicle was equipped with FBCB2-BFT. The battalion scout platoon leader's vehicle also received the FBCB2-BFT. The task force commander's combat vehicle and the task force S-3's (operations officer) combat vehicles were equipped with FBCB2-BFTs. Finally, the task force tactical operations center received two systems, one vehicular mounted and one laptop type. These systems provided increased situational awareness through the visual representation of all other blue force maneuver units and provided an alternate means of communications over extended distances and beyond line-of-sight using the free text messaging capability.

[20] Field Manual 3-90.2 the Tank and Mechanized Infantry Battalion Task Force, (Washington, D.C.: Headquarters, Department of the Army, 2003), paragraph 2-2.

PREVIOUS PROCESS AND/OR TACTICS, TECHNIQUES AND PROCEDURES USED

Prior to the fielding of FBCB2-BFT, the battalion task force commander's situational awareness was dependent on the following: what he could personally observe, face-to-face interactions with his staff and commanders, reports he received and communications he had with his subordinate commanders via FM radio, reports and communications he received from his main command post (CP) via FM radio, and interactions with his brigade commander via FM radio or face-to-face.

Doctrinally,[21] the main CP is the task force commander's principal command and control facility. The main CP moves as required to maintain control of the operation. In linear operations environments, it locates behind the company team CPs and, if possible, out of medium artillery range. In non-linear operations (non-contiguous areas of operations), it locates where it can best support TF operations and where it is least vulnerable to potential hostile actions. The TF XO is responsible for supervising all staff activities and functions within the main CP. The main CP provides the following functions:

- Synchronizes combat, combat support, and combat service support activities in support of the overall operation.
- Provides a focal point for the development of intelligence.
- Supports situational understanding for the TF commander and subordinates by monitoring, analyzing, and disseminating information.
- Monitors and anticipates the commander's decision points.
- Plans future operations.
- Monitors sustaining operations.
- Coordinates with higher headquarters and adjacent units.
- Keeps higher headquarters informed.
- Serves as net control station for the operations and intelligence (OI) radio net and backup net control station for the command radio net.
- Provides terrain management.
- Provides a stable, secure planning facility.
- Produces and disseminates the commander's orders.
- Plans and controls ISR operations.

The main CP relies on FM communications for the operation of the TF's O&I net, admin-log net, and command net. To maintain communications for passing and receiving information from the brigade, the TF main CP uses MSE. The CP also operates on the brigades' FM nets. The TF main CP positioned itself to maintain connectivity with both the TF elements and the brigade tactical CP.

Prior to the introduction of the TeleEngineering capability the forward deployed engineers would make all engineering estimates based solely on their personal knowledge and experience and the reference materials on hand.

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[21] Ibid., paragraph 3-8b.

IMPACTS OF TECHNOLOGY ON PROCESSES, ORGANIZATION, AND PEOPLE

The application of new technologies on the battlefield allowed U.S. forces to fight in a substantially different way during the maneuver phase of OIF than they had during Desert Storm in 1991. V Corps forces fought using fewer forces, more widely dispersed, and at a higher operational tempo than was previously possible. Because of the widely dispersed forces and the rapid movement of forces around the battlespace, systems like the MSE that had previously provided the majority of the communications backbone from the battalion TF level and up were no longer able to meet the demands of the new operating environment.

Systems like the FBCB2-BFT provided users a real-time view of their own location and near-real-time view of other BFT-equipped forces. The BFT also populated the common operational picture (COP) of numerous networked command and control systems. The FBCB2-BFT also served as an alternate communications means when line-of-sight systems could not. Systems like the TCE provided reachback and access to data and expertise that otherwise was not readily available to engineers in combat formations.

TECHNOLOGY AS AN ENABLER

There were approximately 1,200 BFT systems fielded to forces and operating in the theater during OIF. These systems enabled a blue force COP that was accurate, relevant, timely/near-real-time, and provided to levels (tactical through strategic/national) not previously experienced.

The FBCB2-BFT enabled the TF commander at Objective PEACH to see where the 2nd BCT forces were and understand that they would not make the bridge crossing at the planned time. This information enabled the TF commander to quickly and accurately comprehend the changed situation. It enabled him to anticipate the delay in 2nd BCT's arrival and make adjustments to his task force's mission and posture in anticipation of enemy counterattacks. Without the information provided by the FBCB2-BFT, LTC Marcone would not have been able to make the quick and timely decisions that preserved the bridgehead.[22]

The TeleEngineering communications equipment enabled the forward deployed engineers in the combat formations to leverage the engineering expertise available in the U.S. The TCE, by way of the video pictures and oral descriptions of events, enabled the U.S.-based engineers to conduct timely analysis of the bridge construction and the military load classification of the damaged highway bridge over the Euphrates using man-hours and expertise unavailable to the 3 ID and V Corps combat engineers in Iraq.

NETWORK CENTRIC INSIGHTS

This battle story as seen from a netcentric point of view yields several insights.

1. FBCB2-BFT significantly improved the quality of individual and shared information. This system allowed wide dissemination of blue force dispositions in near-real-time through the FBCB2-BFT system and populated the common operational picture used at multiple levels from the tactical through the high strategic levels.

[22] Interview with Lieutenant Colonel Marcone.

2. The improved quality of individual and shared information resulted in increased situational awareness for the force. In this battle story, the ability to observe the 2nd BCT movements allowed LTC Marcone to develop a clearer understanding of his situation at PEACH in relation to the current state of friendly, follow-on forces.

3. The increased situational awareness and resultant understanding allowed for rapid decision-making and self-synchronization.[23] In this case, LTC Marcone understood the division and brigade commanders' intent[24] and, with the situational awareness provided by the FBCB2-BFT, developed a battlefield visualization of what needed to happen and took the appropriate and necessary actions.[25]

4. The process in 3 above, can be described as vastly improved command and tactical agility.[26] The result of this agility was improved mission effectiveness.

5. The TeleEngineering communications equipment significantly improved the quality of shared information by providing unparalleled reachback to leverage technical capabilities not readily available in theater. Forward deployed engineers were now able to share the information they had with engineers in sanctuary who were now able to view and assess engineering problems in a distant theater of operations. In this battle story, using audio and video sent from Iraq, the TeleEngineering Operations Center (TEOC) in the U.S. provided timely and accurate feedback on the conditions of the operationally important bridges over the Euphrates to the 54th Engineers on site.

6. The shared information enabled collaboration between engineers in the sanctuary of the U.S. in conducting detailed analysis. This collaboration improved the quality of the information. The TEOC engineers in sanctuary were able to conduct an analysis of the bridge at Al Kifl and then provide the 54th Engineers with the military load classification of the damaged bridge and make recommendations for upgrades and repairs to increase the capacity of the bridge.

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[23] David S. Alberts, John Garstka, and Frederick P. Stein, Network Centric Warfare: Developing and Leveraging Information Superiority, 2nd Edition (Revised) ed., CCRP Publication Series (Washington, DC: National Defense University Press, 1999), 175. "Self-synchronization requires a combination of a rule set and shared awareness, enabling entities to operate in the absence of traditional hierarchical mechanisms for command and control. The rule set describes the desired outcome in various operational situations. Shared awareness provides a mechanism for communicating the ongoing dynamics of the operational situation and triggering the desired value-adding interaction."

[24] Field Manual 3-0 Operations, (Washington, D.C.: Headquarters, Department of the Army, 2001), 5-14. "The commander's intent is a clear, concise statement of what the force must do and the conditions the force must meet to succeed with respect to the enemy, terrain, and the desired end state."

[25] TRADOC Pam 525-70, (Ft. Monmouth, VA.: Headquarters U.S. Army Training and Doctrine Command, 1 October, 1995), para. 1-3. Battlefield visualization is "the process whereby the commander develops a clear understanding of his current state, envisions a desired end state, and visualizes the sequence of activity that will move his force from its current state to the end state."

[26] Field Manual 6-0 Mission Command: Command and Control of Army Forces, (Washington, D.C.: Headquarters, Department of the Army, 2003).Para. 2-40. "The speed and accuracy of a commander's actions to address changing situations is a key contributor to agility. Finally, commanders must anticipate the activities and effects that occur because of their decisions, including unintended second-order effects, effects caused by the enemy's reaction to friendly actions, and effects on future operations." FM 3-0. Para. 4-60. defines tactical agility as "the ability of a friendly force to react faster than the enemy. It is essential to seizing, retaining, and exploiting the initiative. Agility is mental and physical. Agile commanders quickly comprehend unfamiliar situations, creatively apply doctrine, and make timely decisions."

7. The improved quality of the information resulted in a shared understanding and increased mission effectiveness of the deployed engineers. The reachback TCE provided allowed the 54th Engineers to leverage information and data bases that in the past would have taken days or even weeks to access. This capability presented the engineers with the unique capability of not only solving technical problems but applying scarce assets efficiently while maintaining the tempo of the battle. Increased mission effectiveness is also reflected in the increased speed of decision making and in the mobility options provided to the force overall.


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